

DEVICE FOR A LINE TERMINATION OF TWO-WIRE LINES

Related Art

The present invention relates to a device for a line termination of two-wire lines having a first and second terminating resistor between the two wires, the first and the second terminating resistor being connected in series.

- 5 Such a device is known from the German patent DE 195 25 350 A1. It is proposed there that at least one first and one second terminating resistor be provided between the two wires of the two-wire line and that the two resistors be connected in series. Originating with the connecting line between the
10 two resistors is a line that is connected to a fixed voltage potential, especially ground. Until now, the terminating resistor has always been permanently predefined, especially in a CAN bus system, i.e., either implemented or not implemented in the control unit. As a consequence, there is no flexibility
15 in use.

Therefore, it is the object of the present invention to provide a device that allows greater flexibility when used in a line termination of two-wire lines.

Summary of the Invention

- 20 The aforementioned objective is achieved by a device for a line termination of two-wire lines having at least one first and one second terminating resistor between the two wires, the first and the second terminating resistor being connected in

series, and at least one switching means being advantageously provided between the two terminating resistors.

This increases the flexibility during use since a rapid switch or rapid adaptation is possible in the application when using the terminating resistor configured in this manner.

In an advantageous manner, this device is used in connection with a CAN bus system and assumes the receive and/or transmit function therein, so that the two-wire line is part of a CAN bus system, i.e., the lines CAN high and CAN low.

In addition, a switching logic is expediently provided, which triggers the at least one switching means as a function of an input signal.

Furthermore, in a special embodiment, it is advantageous that this input signal is generated by an arithmetic function block, especially the microcontroller itself.

The use of a configurable terminating resistor, in particular a CAN terminating resistor, makes it possible to adapt the termination resistor to the individual application, either by controlling the switching logic via software (via digital output from μc) or via hardware, i.e., by way of a hardware bridge in the cable harness plug. This minimizes the multitude of control units, especially on the side of the customer and supplier, for instance to a single control unit for stand-alone, master and slave, for example, instead of one for each application. The result is reduced expenditure for logistics and stock-keeping and, in particular, also lower costs for customers and suppliers.

In an advantageous manner, a balancing member is connected between the terminating resistors, which, in a useful specific embodiment, is able to be connected thereto by one switching means for each terminating resistor.

In this way, a control unit, especially for the control of operating sequences in a vehicle, is able to be adapted to various applications by software configuration, in particular.

Brief Description of the Drawing

5 Hereinafter, the present invention is explained in greater detail with the aid of the drawing shown in the single figure. It shows a device according to the present invention.

Description of the Exemplary Embodiments

The single figure - Figure 1 - shows a CAN high and a CAN low line, CAN-H and CAN-L, respectively, which are connected to a component 100 via coupling elements 111 and 112, respectively, in particular as a function of a CAN transceiver. As just mentioned, component 100 assumes the receive and/or transmit functionality, i.e., the transceiver function of a CAN component in this respect. The CAN-High and CAN-Low lines are guided to a driver module, in particular a CAN driver module 103. Furthermore, two terminating resistors 107 and 108 are shown, which are connected in series and, with the aid of switching means 105 and 106, are able to be connected to one another and also to a balancing unit, a balancing element 109. Switching means 105 and 106 are addressed by a control logic 104, which is symbolically denoted by the dashed arrows. The control logic itself receives an input signal via line 114, an additional coupling element 110, for instance from the arithmetic function block or microcontroller 101, via an output thereof, for instance output 113. Furthermore, the microcontroller is connected to the driver module for the communication via a communication connection 102 in a unidirectional and/or bidirectional manner.

30 On the basis of the input signal at switching logic 104, it is possible to select whether the terminating resistor is active

or separated from the bus. On the one hand, the input signal may be generated or picked off digitally, i.e., via microcontroller output 113, or via a bridge in the cable-harness plug. The separation from the bus is realized by two
5 electrical switches, i.e., switching means 105 and 106. This allows the configuration of the terminating resistor to be modified at any time via a μ c output; in the case of a bridge in the cable-harness plug, only after its reconfiguration.

Due to the installation of the configurable CAN terminating
10 resistor, the terminating resistor is able to be adapted to the particular application either by software-based or hardware-based triggering of the switching logic. In a software-based adaptation, the digital output of microcontroller 101 will be used for this purpose. In a
15 hardware-based adaptation, this must be implemented by a bridge in the cable-harness tree. In the case of control units for the control of operating sequences, especially in a motor vehicle, this minimizes the multitude of control devices for customers and suppliers. An adaptation of the CAN terminating
20 resistor of the control unit to various applications is therefore implemented solely by modifying the software configuration, so that a simple and flexible possibility for a rapid application adaptation is provided.